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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,324

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Alan Finlay

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EXAMINER

LOGIE, MICHAEL J

ART UNIT

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10/15/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,324	Applicant(s) FINLAY, ALAN	
	Examiner MICHAEL J. LOGIE	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

An "Amendment" was received on 20 July 2009, in response to Office Action of 15 April 2009. Claims 1, 9 and 15 have been amended. Claim 14 has been cancelled. Claims 1-13 and 15-18 are now pending.

Response to Arguments

Applicant's arguments with respect to claims 1-13 and 15-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claims 1 and 15 are objected to because of the following informalities:

Line 2 of Claim 1 recites "within an pre-evacuated chamber", this should be -- within a pre-evacuated chamber--.

Line 10 of Claim 15 has two periods.

Appropriate correction is required.

Claim 11 recites the limitation "on the outlet tube" and "the second chamber" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "the first chamber" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the second chamber" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-4, 11-13, 15, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Padrta (US patent no. 3,458,699).

In regards to claims 1 and 15, Padrta teaches a mass spectrometer system (fig. 1) comprising a mass spectrometer device provided within an pre-evacuated chamber (fig. 1, and col. 4, lines 65-72, note: “within a vacuum zone normally provided within an analyzer inlet section”), the chamber having an entrance port through which a sample may be introduced (fig. 1, 18 coupled to analyzer inlet section 22) into the chamber and into contact with the mass spectrometer device (col. 4, lines 65-72), the system additionally including comprising a permeable membrane (glass frit 21) located across the chamber (it is interpreted that glass frit 21 is in a direction across and thus located across the chamber 22) between the port and the spectrometer device (as seen in figure 1) and a valve located between the membrane and the entrance port (fig. 1, capillary tube 17 best seen in figure 4 marked as “breakable sealed tip”) and having a closed state and an open state (open state seen in figure 1 and closed state seen in figure 4, 28), such that, in use, the adoption of the open state allows the flow of the sample into the chamber through the membrane and into contact with the spectrometer

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device (col. 4, lines 65-72) and a reduction of the pressure differential across the membrane (since the sample is released from the capillary as a vapor, there is inherently some reduction in the pressure differential in the chamber).

In regards to claims 3 and 17, Padrta teaches wherein the valve is formed from a rupturable diaphragm sealing the evacuated chamber, the rupturing of the diaphragm breaking the seal and allowing the flow of the sample into the chamber (fig. 4, “breakable sealed tip”, note: col. 4, lines 53-72).

In regards to claims 4 and 18, Padrta teaches wherein the valve is formed from a breakable glass member (fig. 4, 28) and an actuator (push rod 7 and offset wall portion 20), the glass member being located across the chamber and sealing the chamber (when 17 is inserted into port 18, it is located on the far side of the chamber 22 and 8 and 18 form a dry seal as seen in figure 2 and described in col. 4, lines 58-72), and wherein, in use, the actuator is adapted to come into contact with the glass member, breaking the member and consequently the seal (as discussed in col. 4, lines 58-72).

In regards to claims 11-13, Padrta teaches wherein a pump is provided on the outlet tube, the pump adapted to effect a reduction in pressure of the second chamber (col. 4, lines 58-72 teach that the mass spectrometer is normally within a vacuum zone, which implicitly means that there is a pump. Further, it would be within the skill of the operator to adjust the vacuum to the appropriate setting since all other parts are present).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Padrta (US patent no. 3,458,699) and further in view of Bonne (US patent no. 7,367,216).

In regards to claims 2 and 16, Padrta differs from the claimed invention by not disclosing wherein the spectrometer device is formed from a MEMS device.

Bonne teaches wherein the spectrometer device is formed from a MEMS device (col. 2, lines 61-65).

Bonne modifies Padrta by teaching the spectrometer device fabricated from a MEMS device.

Since both Padrta and Bonne teach analysis of a gas sample, it would be obvious to one of ordinary skill in the art to have the spectrometer device fabricated from a MEMS device because this kind of fabrication results in small, low-power consumption and in situ placement of the micro analyzer.

Claims 5-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Padrta (US patent no. 3,458,699) and further in view of Drew et al. (USPN 5,313,061).

In regards to claims 5-8, Padrta differs from the claimed invention by not disclosing the structure and materials of the membrane.

Drew et al. teach wherein the membrane is formed from a polydimethylsiloxane material, wherein the polydimethylsiloxane material is formed as a liquid layer on a substrate, a polymerisation of the material on the substrate forming the membrane, wherein the substrate is a metal mesh structure or a silicon based substrate (Drew et al. teaches the membrane is a dimethyl silicone col. 8, lines 19-22, the limitations of claims 5-8 are commonly used as membrane structures and integration is common knowledge of the skilled artisan).

Drew et al. modifies Padrta by providing a polydimethylsiloxane membrane.

Since both Padrta and Drew et al. teach mass spectrometry, it would be obvious to one of ordinary skill in the art to have the membrane of Drew et al. in the device of Padrta because the membrane would selectively pass the organic compounds into the mass analyzer to reduce the gas load that must be removed by the vacuum pump.

In regards to claims 9-10, Padrta differs from the claimed invention by not disclosing further including a second evacuated chamber, the first evacuated chamber being located within the second evacuated chamber, the pressure within the first evacuated chamber being less than that of the second evacuated chamber.

Drew et al. teach including a second evacuated chamber (fig. 1a, 20), the first evacuated chamber being located within the second evacuated chamber (fig. 1a, 20 is located inside of 18), the pressure within the first evacuated chamber being less than that of the second evacuated chamber (col. 12, lines 35-46 and col. 26, lines 6-10).

Drew modifies Padrta by providing a second vacuum chamber.

Since both Padrta and Drew et al. mass spectrometry, it would be obvious to one of ordinary skill in the art to have the second vacuum chamber of Drew et al. in the device of Padrta in order to increase the mean free path of the ions and the probability that the ions will travel to the detector.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent prior art is closely related art that individually or in combination could be considered grounds for rejection.

Arita (JP2001155677) (abstract translation submitted herewith) teaches a membrane inlet mass spectrometer which can be made compact and light in weight by eliminating the need of carrier gas while performing an exact correction.

Bursack et al. (UPN 4,201,913) teaches an apparatus for introducing a gaseous sample into a mass spectrometer is disclosed which includes a hollow antechamber or cavity disposed between the sample stream and the high vacuum enclosure. Orifice openings are provided in the antechamber which allow the antechamber to communicate both with the high vacuum enclosure and the sample stream. *An electrically operated pulsed valve* is used to admit a series of small volumes of sample by pulses of controlled duration and frequency such that the sample flow from the antechamber into the high vacuum enclosure can be made to resemble one of essentially constant flow.

See references cited for a listing of the pertinent prior art found and the prior art found.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Logie whose telephone number is 571-270-1616. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. L./

Examiner, Art Unit 2881

/ROBERT KIM/

Supervisory Patent Examiner, Art Unit 2881